

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

THE TRUSTEES OF PURDUE UNIVERSITY,

Plaintiff,

vs.

STMICROELECTRONICS INTERNATIONAL N.V.,
AND STMICROELECTRONICS, INC.

Defendants.

CASE NO. 6:21–CV–00727-ADA

JURY TRIAL DEMANDED

**DEFENDANTS’ OBJECTIONS TO THE COURT’S
CLAIM CONSTRUCTION ORDER [ECF 220]**

On April 26, 2022, the Court referred the *Markman* hearing and claim construction order to Magistrate Judge Derek T. Gilliland. [ECF 82]. The Court held a *Markman* hearing before Judge Gilliland on April 29. On May 9, 2022, the Court entered an order stating that “the Court plans to issue a more-detailed Order explaining its analysis in due course” and that “the deadline to file any objections to the undersigned’s claim construction ruling (pursuant to Federal Rules of Civil Procedure 59 and 72) do not need to be filed until 14 days after that more-detailed Order is entered upon the docket. [ECF 90]. On December 14, 2022, Judge Gilliland issued the more-detailed *Markman* order [ECF 220, “*Markman* Order”]. Under FRCP 72(a), “[w]hen a pretrial matter not dispositive of a party’s claim or defense is referred to a magistrate judge to hear and decide, the magistrate judge must promptly conduct the required proceedings and, when appropriate, issue a written order stating the decision.” Then, “[a] party may serve and file objections to the order within 14 days after being served with a copy.” Further, under FRCP 72(a), “[a] party may not assign as error a defect in the order not timely objected to.”

Accordingly, to preserve their appellate rights, and per the Court's order at ECF 90, Defendants¹ hereby serve their objections to the Court's *Markman* Order per Rule 72(a).

Plaintiff originally asserted U.S. Patent Nos. 7,498,633 ("the '633 Patent") and 8,035,112 ("the '112 Patent"). The Court dismissed all claims and counterclaims related to the '112 Patent with prejudice (ECF 151, adopted at ECF 158). Accordingly, Defendants will not address the Court's constructions of the '112 Patent.

Objections to the Court's *Markman* Order for Claim 9 of the '633 Patent²

For claim 9, the Court held that "the entire preamble for Claim 9 of the '633 Patent is limiting." *Markman* Order at 25. Defendants agree that the preamble is limiting. However, Defendants object to the Court's use of the term "MOSFET" in its analysis in place of the preamble language of "a double-implanted metal-oxide semiconductor field-effect transistor." There are many different types of MOSFETs, including for example double diffusion DMOSFETs and trench USMOSFETs *see* Dkt. 74-4 at pp 5-11 (STMicroelectronics' Reply Claim Construction Brief, Defendants' Response Claim Construction Brief, Ex B). The particular MOSFET of claim 9 is a "double-implanted metal-oxide semiconductor field effect transistor."

The Court held that "less than about three micrometers" is not indefinite and should be given its plain and ordinary meaning. *Markman* Order at 31. When "about" is used as part of a

¹ Defendant STMicroelectronics International N.V. did not participate in the *Markman* briefing or hearing since it was not properly served until after the *Markman* hearing. By serving these objections, Defendant STMicroelectronics International N.V. is not waiving any of its rights with respect to claim construction issues.

² The Court's claim construction order only addressed issues with claim 9. Claim 10 was added to the case after claim construction briefing and after the Court's *Markman* order. Defendants reserve the right to address claim construction issues for claim 10, which Defendants have not yet had the opportunity to raise and address.

numeric range, “[its] meaning depends on the technological facts of the particular case.”³ The criticality of the numerical limitation to the invention determines how far beyond the claimed range the term “about” extends the claim.⁴ In other words, the Court must look to the *purpose* that the “less than about three micrometers” limitation serves to determine with any reasonable certainty how much greater than 3 micrometers the JFET width can be and still serve that purpose. *See id.* at 1368 (“To be clear, it is the purpose of the *limitation* in the claimed invention—not the purpose of the invention itself—that is relevant.”). But the Court did not address the purpose of the JFET width limitation in the claimed invention. Further, neither the intrinsic nor extrinsic record explains the purpose of the claimed JFET width.

Accordingly, Defendants object to the Court’s rulings. Regarding the lower limit of the disputed term, the Court correctly noted that the term does not “specify a minimum,” but held that any device with “a JFET width less than 3 μm meets the claim limitation.” *Id.* at 30. However, the Court then held that “a POSITA would know, with at least reasonable certainty, that the minimum lower bound is the minimum feature size (along with some very slight manufacturing variation), i.e., the minimum size that can be manufactured.” *Id.* The Court, however, did not point to anything in the record (intrinsic or extrinsic evidence) that would allow a POSITA to determine the lower boundary of the claimed range, which the Court appears to acknowledge must be something greater than 0, but less than 1 micrometer. Based on the Court’s analysis, claim 9 would cover devices with JFET widths 0.001 or 0.0001 micrometers. Further, the Court did not address the fact that—under the Court’s construction—the lower limit is a

³ *Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1368 (Fed. Cir. 2008) (alteration in original) (quoting *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1217 (Fed. Cir. 1995)).

⁴ *Id.* (citing *Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Labs., Ltd.*, 476 F.3d 1321, 1327 (Fed. Cir. 2007)).

moving target that would follow as technology evolves (even if a POSITA in 2006 could not possibly have made such a device using the manufacturing process technologies available at that time). Thus, the lower limit should be bounded by what a POSITA would understand was the lower limit for the manufacturing process technology that existed in 2006. But there is nothing in the intrinsic or extrinsic record to explain what a POSITA would understand to be that lower limit in 2006 based on the process technology available at that time. Accordingly, there is no disclosure about where to draw the line between 0 and 1 micrometer.

Regarding the upper boundary, the Court held that “terms of approximation like ‘about’ or ‘at least about’ are common in patent law and the Federal Circuit has confirmed that they are not indefinite.” *Id.* Further, the Court held that “a POSITA would understand that ‘about’ is not indefinite, but rather, at minimum, was intended to account for well-known fabrication variation.” *Id.* Finally, regarding the upper limit, the Court held that “the specification provides design guidance and objectives including optimizing the width to reduce the on-resistance and the electric field, and ensuring good forward current conduction and withstanding reverse blocking voltage.” *Id.* The specification, however, does not describe the purpose that the “less than about three micrometers” high-end limit on JFET width is supposed to achieve in the claimed MOSFET device. For example, the ’633 Patent does not say there is any particular characteristic or purpose of the device that is achieved with a JFET width in the vicinity of less than about 3 micrometers that is not achievable at other dimensions—whether 3.1 micrometers, 3.5 micrometers, 4.0 micrometers, or any other dimension. To the contrary, the specification explains that there are multiple characteristics that a designer may consider: “One design consideration . . . is the blocking voltage of the semiconductor device. [F]or high-voltage power applications, a high blocking voltage is generally desirable. Another design consideration . . . is

the specific on-resistance.” ’633 Patent at 1:18–28. Moreover, the specification explains that MOSFET design involves many parameters (including the width of the JFET region) that are interdependent, where design choices for one parameter invariably affect the other parameters. *Id.* at 6:55–62. Accordingly, the specification concedes that selection of various design parameters (including JFET width) depends on “desired characteristics” of the MOSFET device, but fails to provide *any* characteristics motivating the selection or required precision of the 3-micrometer JFET measurement. As a result, there is no basis in the specification from which to determine the criticality of the JFET width, the precision required, the resulting range of values encompassed by the claim, or the upper or lower limits. Further, the Court improperly relied on extrinsic evidence from the Bhat declaration regarding semiconductor fabrication processes. However, nothing in the Bhat declaration, nor any other intrinsic or extrinsic evidence, provides any explanation for what a POSITA would understand the tolerances of semiconductor fabrication processes in 2006 for a JFET width. It stands to reason that there were many different processes and equipment, and thus there is no evidence that a POSITA would know, with any reasonable certainty, what the upper limit would be for the term “less than about 3 micrometers.” Likewise, there is nothing in the intrinsic evidence that even suggests that “about” in claim 9 is intended to address manufacturing tolerances in the first place.

In sum, neither the claims nor the specification provide any design reasons for the “less than about three micrometers” high-end limit on the JFET region size. And a POSITA, understanding the design tradeoffs inherent in MOSFET devices, has no guidance regarding the criticality of the 3-micrometer measurement to the invention in order to reasonably determine the upper limit of the range. So a POSITA does not have context to understand how close the measurement can (or must) be to 3 micrometers to be acceptable, and whether such measurement

would be based on the design (i.e., desired width) or the actual manufactured width, while taking into account unknown manufacturing tolerances of the many different semiconductor fabrication processes available in 2006. Therefore, the term is indefinite, just as courts have held in similar cases.⁵

The indefiniteness of the phrase “less than about” is placed into sharper focus with the recent addition of claim 10 to the case. Unlike the confusing language of claim 9, which recites a JFET region having a width *less than about* 3 micrometers, the language of claim 10 simply recites a JFET region having a width of *about* 1 micrometer. The language of claim 10 confirms that the patentee knew how to use the term *about* to indicate a +/- variance from 1. But for claim 9, the patentee used the term *less than about*, which does not indicate a variance above or below 3.

Accordingly, Defendants object to the Court’s construction for “less than about 3 micrometers” and ask the Court to find the term indefinite.

⁵ See, e.g., *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1203 (Fed. Cir. 1991); *Hamilton Prod., Inc. v. O’Neill*, 492 F. Supp. 2d 1328, 1332–33 (M.D. Fla. 2007); *Synthes (USA) v. Smith & Nephew, Inc.*, 547 F. Supp. 2d 436, 454 (E.D. Pa. 2008); and *Pac. Coast Bldg. Prod., Inc. v. CertainTeed Gypsum, Inc.*, 816 F. App’x 454 (Fed. Cir. 2020) (“[w]e have previously found claims indefinite where the claim requires a specific measurement or calculation, more than one measurement method may be used and no guidance has been provided.”).

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Respectfully submitted:

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CERTIFICATE OF SERVICE

I certify that on December 28, 2022, the foregoing document was electronically filed with the Clerk of the Court using CM/ECF, which sent notice of the filing to all case participants.

/s/ Justin S. Cohen
Justin S. Cohen